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Serial No. : 10/659,103
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Attorney's Docket No.: 09712-333001 / Z-436

Amendments to the Drawings:

The attached replacement sheets of drawings replaces the original sheets including Figs. 1, 2, 3, 4, 5, 6A, 6B, and 7.

Attachments following last page of this Amendment:

Replacement Sheet (8 pages)

REMARKS

In response to the Office Action dated December 15, 2005, we have amended claims 1, 3, 4, 16, 17, 25-28, 30, 40, 41-44, 46, 53, 55, 56, and 58, cancelled claims 54, 57, and 59-61, and added new claims 62-64. Accordingly, claims 1-53, 55-56, 58, and 62-64 are presented.

Drawings

We enclose formal drawings with this amendment and ask that the Examiner's objection to the drawings based on hand drawn lines and informal numbers and regions be withdrawn.

The action indicates that figures 3 and 5-7 should be labeled as prior art. However, when viewed in light of the rest of the specification, these figures depict aspects that are new and are not, therefore, prior art. For example, Fig. 3 shows a high stability plane mirror interferometer which is a component of the system shown in Fig. 1 and 2. As described in the specification, this system is used to implement new methods for determining the location of an alignment mark on a stage and methods for characterizing surface variations of a mirror. Figs. 5 shows a lithography tool 1100 that includes an interferometry system 1126 which is used to implement the new methods. Fig. 7 shows a beam writing system 1200 which includes an interferometry system 1220 that is similarly used to implement the new methods. Fig. 6(a) and 6(b) are flow charts that describe steps for making integrated circuits. As would be understood by one of ordinary skill in the art when view in light of the rest of the specification, the "Wafer Manufacture" step 1153 in Fig. 6(a), for example, incorporates the new methods, as does the "Exposure" step 1166 in Fig. 6(b). Accordingly, none of Figs. 3 and 5-7 are prior art. We ask that this objection to the drawings be withdrawn.

Claim Rejections – 35 U.S.C. § 112

The action rejected claims 53-61 as being indefinite. We have cancelled claims 54, 57, and 59-61, so the rejection of these claims under 35 U.S.C. § 112 should be withdrawn. Furthermore, we have amended claims 53, 55, and 58 to address the rejection under 35 U.S.C. §

112 and submit that, as amended, these claims are not indefinite. Accordingly, we ask the Examiner to withdraw the rejection of these claims under 35 U.S.C. § 112.

Claim Rejections – 35 U.S.C. § 102

The action rejected claims 1-4, 10-12, 16-23, 25-27, 30, 36, 38, 39, 44-58, and 61 as being anticipated by Kamiya (U.S. Pat. No. 5,790,253). Of the rejected claims, claims 1, 17, 30, and 44 are in independent form.

We have amended these independent claims to clarify that the imperfections in the “interferometer” or “interferometry system” refer to imperfections in interferometer optics that are configured to direct a beam to reflect from a measurement object. For example, as amended, claim 1 is directed to a method that requires “determining a location of [an] alignment mark [on a stage] ... based on a correction term ... calculated from predetermined information comprising *information characterizing imperfections in [] interferometer optics*,” where the interferometer optics are “configured to direct a measurement beam to reflect from a mirror.” Claims 17 and 30 are directed to methods that require “determining a correction term” related to imperfections in interferometer optics configured to direct a beam to a measurement object. Claim 44, as amended, is directed to an apparatus that includes “an electronic controller ... [which] during operation ... determines a location of [a] mirror surface along a third axis based on ... a correction term, ψ_3 , calculated from predetermined information comprising information characterizing *imperfections in the interferometer optics*.”

In contrast, Kamiya discloses using an interferometry system to characterize imperfections in a plane mirror measurement object. This is acknowledged in the action, where the Examiner notes that “the imperfections in the interferometer are the measurement mirror curving errors” (see, e.g., Office Action, page 6, last paragraph). We could not find any disclosure or suggestion in Kamiya that his methods or apparatus involve using information about imperfections in interferometer optics that are configured to direct a beam to reflect from the mirror. Accordingly, Kamiya does not anticipate claims 1, 17, 30, 40, or 44, and we ask that the rejection of these claims in view of Kamiya be withdrawn.

Claims 2-4, 10-12, 16, 53, 55, 56, and 58 depend, either directly or indirectly, from claim 1. Accordingly, these claims should be patentable over Kamiya for at least those reasons set forth above in connection with claim 1, and we ask that the rejection of these claims as being anticipated by Kamiya be withdrawn.

Claims 18-23 and 25-27 depend, either directly or indirectly, from claim 17. Accordingly, these claims should be patentable over Kamiya for at least those reasons set forth above in connection with claim 17, and we ask that the rejection of these claims as being anticipated by Kamiya be withdrawn.

Claims 36, 38, and 39 depend, either directly or indirectly, from claim 30. Accordingly, these claims should be patentable over Kamiya for at least those reasons set forth above in connection with claim 30, and we ask that the rejection of these claims as being anticipated by Kamiya be withdrawn.

Claims 45-52 depend, either directly or indirectly, from claim 44. Accordingly, these claims should be patentable over Kamiya for at least those reasons set forth above in connection with claim 44, and we ask that the rejection of these claims as being anticipated by Kamiya be withdrawn.

As noted above, we have cancelled claims 54, 57, and 61, so the prior art rejection of these claims should be withdrawn.

Double Patenting

The action also provisionally rejected claims 1-61 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-31 of copending Application No. 10/630,361. Because the double patenting rejection is provisional, we ask the Examiner to hold the rejection in abeyance until such time that the double patenting rejection is the only remaining rejection, or until the claims in Application No. 10/630,361 are allowed. Furthermore, we ask the Examiner to reconsider the double patenting rejection in view of the claim amendments because the independent claims in Application No. 10/630,361 are directed

methods or apparatus that involve characterizing or using information about surface variations of a mirror, not imperfections in interferometer optics.

New Claims

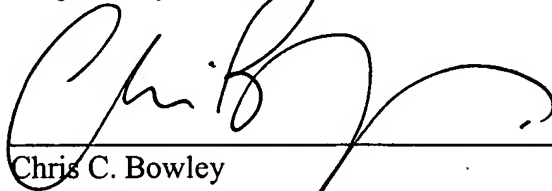
New claims 62-64 depend from claim 17 and should, therefore, be allowable over Kamiya for the same reasons as claim 17 as set forth above. We ask the Examiner to allow claims 62-64.

Conclusion

We submit that all claims are in condition for allowance, which action is requested. Enclosed is a \$120 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 4/17/2006


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